XIV. ATTACHMENTS

ATTACHMENT #1

TECHNICAL ENVIRONMENT

I. Infrastructure (Francis Young)

A. Introduction/Background

A summary statement describing the current technical environment, and what the agency plans for the technical environment to be by the beginning of FY2000, FY2001, FY2002, FY2003, and FY2004.

The National Labor Relations Board (NLRB) information infrastructure consist of 2000 Pentium PCs connected to Novell networks, 300 laptops, 1500 printers and a combination of desktop and network scanners. The fileservers are a combination of Compaqs and Gateways. There are four different network configurations at the NLRB. The Headquarters network configuration supports all users at the headquarters building. The Regional office configuration supports 33 regional offices users located throughout the United States. The Resident Office configuration support 17 nationally located resident offices. The Judges' Division Office configuration support the Headquarters Judges division and three nationally located Judges offices. All headquarters and Judges divisions Netware servers are running Novell IntraNetware 4.11. The headquarters office also has several servers running Windows NT version 4.0. All headquarters and Judges networks are using Ethernet.

The regional offices Netware servers are running a 50 or 100 user version of Novell IntraNetware 4.11. All resident office Netware servers are running a 10 or 20 user version Novell NetWare 4.2. Some regions also have Proliant 5000 running Windows NT version 4.0. The regions currently running Netware and Windows NT are: 1, 2, 5, 7, 8, 9, 13, 14, 16, 17, 22, 27 and 29. Regional offices and Resident offices are using Ethernet protocol.

NLRB's Communication needs are met through the use of Shiva LanRovers, a Cubix communication server (headquarters only) and PCs with modems. Each regional office has a Shiva LanRover and two PCs setup for communication. Mail is circulated through the NLRB through the use of mail gateways running on the Cubix communication server connecting with one of the two PCs in each field office with a modem. A Bay Networks Instant Internet unit is installed for access to Westlaw and the Internet in headquarters and each field office. NLRB is also has a WAN connection to each of it 52 remote locations.

The Agency uses Palindrome version 4.0g autoloader software to backup the Headquarters network. The software is running on Gateway P166 connected to a Spectralogic backup unit. Judges and Resident offices use Palindrome Backup units and Palindrome's Network Archivist software to backup their networks. Regional offices are using Segate Storage Management Software and have internal tape drives in their server.

NLRB desktop PCs are Gateway Pentium/Pentium II or Dell Pentium II. All desktop PCs have 3COM Ethernet cards installed and a 15 or 17 inch color monitor. The agency's desktop standard operating system is Windows 95. All desktops are using Microsoft Word as the word processing software, Microsoft Excel as the spreadsheet software, and Microsoft Access as the database software. The desktops are running the Office 97 suite of these applications. Lotus CC:mail is the e-mail package used by the NLRB.

FY 2000

The NLRB will complete the upgrade of its aging infrastructure during FY 2000. The regional office fileservers upgrade to Compaqs running IntraNetware will be completed. All desktop PCs will be Pentiums. The standard operating system for desktops will be Windows 95 and Microsoft Office 97 Professional Suite will be the standard application suite. The NLRB will have a Wide Area Network that connects all 52 field offices over 56 Kb lines. The installation of NT servers in each regional office to accommodate the regional CATS database will be completed. Through the WAN, regions with resident office assigned to them will provide access to the Regional CATS database to their assigned resident office. All offices will have Internet connectivity. The Agency will replace all the fileservers in headquarters and begin a 25 % yearly replacement plan for PCs Agencywide. The major projects for FY 2000 will be upgrading the Agency e-mail package, completing the Agency Intranet and upgrading the remote access capabilities at headquarters.

FY 2001

The Agency will continue its 25 % yearly replacement plan for PCs Agencywide. During FY 2001, the NLRB will analyze the various desktop operating systems available to determine a path for upgrading the agency desktops to the latest technology and begin the upgrade process. The NLRB will also study the feasibility of hosting our own Web page. The Agency will also analyze WAN connections to determine if the bandwidth needs to be increased. The Agency will setup a network monitoring center to monitor network traffic of the WAN and conduct an analysis and design study for restructuring NLRB headquarters network.

FY 2002

The Agency will continue its 25 % yearly replacement plan for PCs Agencywide. During FY 2002, the NLRB will analyze the various network operating systems available to determine a path for upgrading the Agency networks to the latest technology. The NLRB will setup it's own Web page. The Agency will increase the bandwidth on the WAN. NLRB will complete the upgrade of its desktop software to the latest technology,

restructure the Agency headquarters network, evaluate and redesign the location of Agency field equipment, begin upgrading Judges and resident office network fileservers to latest hardware, and continue to build on the Agency Web Page and Intranet.

FY 2003

The Agency will continue its 25 % yearly replacement plan for PCs Agencywide and complete the upgrade of resident office fileservers. An upgrading of the Agency network operating system will begin and a 25% replacement of field fileservers will be started. An analysis of the agency backup solution will be conducted and upgraded to the latest technology. Continue to build on the Agency Web Page and Intranet, complete the relocation of Agency field equipment, and analyze and upgrade Agency firewall to latest technology.

FY 2004

The agency will continue its 25 % yearly replacement plan for PCs Agencywide. Complete upgrading the agency network operating system and continue the 25% replacement of field fileservers. Complete analysis of NLRB Cable plant nationwide and design a strategy for upgrading.

B. Detailed Breakdown of Technical Environment

1. Servers

1.1 Makes, Models and Location

Make (#)	Model	Location
Compaq (7)	Proliant 4500	Headquarters
Compaq (2)	Proliant 3000	Headquarters
Gateway	Pentium (P166)	Headquarters
Gateway	Pentium (P120)	Headquarters
Compaq (2)	Proliant 1500	Headquarters
Compaq (6)	Proliant 5000	Headquarters
Compaq	Proliant 1500	Region 01, Boston
Compaq	Proliant 3000	Region 02, New York
Compaq	Proliant 3000	Region 03, Buffalo
Compaq	Proliant 3000	Region 04, Philadelphia
Compaq	Proliant 1500	Region 05, Baltimore
Compaq	Proliant 3000	Region 06, Pittsburgh
Compaq	Proliant 3000	Region 07, Detroit
Compaq	Proliant 3000	Region 08, Cleveland
Compaq	Proliant 1500	Region 09, Cincinnati
Compaq	Proliant 3000	Region 10, Atlanta
Compaq	Proliant 3000	Region 11, Winston-Salem
Compaq	Proliant 3000	Region 12, Tampa
Compaq	Proliant 3000	Region 13, Chicago
Compaq	Proliant 1500	Region 14, St. Louis
Compaq	Proliant 3000	Region 15, New Orleans
Compaq	Proliant 1500	Region 16, Ft. Worth
Compaq	Proliant 1500	Region 17, Overland Park
Compaq	Proliant 3000	Region 18, Minneapolis
Compaq	Proliant 3000	Region 19, Seattle
Compaq	Proliant 3000	Region 20, San Francisco
Compaq	Proliant 3000	Region 21, Los Angeles
Compaq	Proliant 3000	Region 22, Newark
Compaq	Proliant 3000	Region 24, Puerto Rico
Compaq	Proliant 3000	Region 25, Indianapolis
Compaq	Proliant 3000	Region 26, Memphis
Compaq	Proliant 1500	Region 27, Denver
Gateway	Proliant 3000	Region 28, Phoenix
Compaq	Proliant 3000	Region 29, Brooklyn
Compaq	Proliant 3000	Region 30, Milwaukee
Compaq	Proliant 3000	Region 31, Los Angeles
Compaq	Proliant 3000	Region 32, Oakland
Compaq	Proliant 3000	Region 33, Peoria

Compaq	Proliant 3000	Region 34, Hartford
Gateway	Pentium (P120)	Albany RO
Gateway	Pentium (P120)	Grand Rapids RO
Gateway	Pentium (P120)	Birmingham RO
Gateway	Pentium (P120)	Jacksonville RO
Gateway	Pentium (P120)	Miami RO
Gateway	Pentium (P120)	Houston RO
Gateway	Pentium (P120)	San Antonio RO
Gateway	Pentium (P120)	Tulsa RO
Gateway	Pentium (P120)	Des Moines RO
Gateway	Pentium (P120)	Anchorage RO
Gateway	Pentium (P120)	Portland RO
Gateway	Pentium (P120)	Honolulu RO
Gateway	Pentium (P120)	San Diego RO
Gateway	Pentium (P120)	Little Rock RO
Gateway	Pentium (P120)	Nashville RO
Gateway	Pentium (P120)	Albuquerque RO
Gateway	Pentium (P120)	Las Vegas RO
Gateway	Pentium (P200)	Atlanta Judges
Gateway	Pentium (P200)	New York Judges
Gateway	Pentium (P200)	San Francisco Judges

1.2 Hardware configuration

Server	Memory	Storage	NOS	NIC
Gateway P120 Backup Server	132 mb	3 gig	Netware 4.10 250 users	3COM Etherlink
Gateway P200	64 mb	3 gig	IntraNetware 4.11 50 users	3COM
Compaq 1500 (2 servers)	64 mb	4.3 gig	Windows NT	Compaq Netflexor Card
Compaq 4500 (6 Servers)	256 mb	12 gig	IntraNetware 4.11 250 Users	Compaq Netflexor Card
Compaq 4500	256 mb	18 gig	Windows NT	Compaq Netflexor Card
Compaq 3000 (2 Servers)	256 mb	16 gig	IntraNetware 4.11 (100/250 users)	Compaq Netflexor Card
Compaq 5000 (3 Servers)	256 mb	7 gig	Windows NT	Compaq Netflexor Card
Compaq 5000	256 mb	12 gig	IntraNetware 4.11 50 users	Compaq Netflexor Card
Compaq 5000 (EDI System)	128 mb	12 gig	Windows NT (EDI System)	Compaq Netflexor Card
Compaq 5000 (Web Server)	740 mb	145 gig	Windows NT	Compaq Netflexor Card
Gateway P120 (17 Resident offices)	16 mb	2.3 gig	Netware 4.2 (10 or 20 users)	3COM
Gateway P200 (3 Field Judges)	64 mb	4 gig		3COM
Compaq 1500 (7 field offices)	128 mb	12 gig	IntraNetware 4.11 (50 or 100 users)	Compaq Netflexor Card
Compaq 3000 (26 field offices)	256 mb	16 gig	IntraNetware 4.11 (50 or 100 users)	Compaq Netflexor Card

NOTE: All Compaq Servers have Smart Array controllers running level 5 RAID.

1.3 Support requirements

1.3.1 Carried out by FTE

Manage NLRB Network and oversee task assigned to the contractor.

1.3.2 Carried out by Contractor

The contractor shall assist NLRB technical staff personnel with tasks relating to system enhancement, standardization, installation, upgrades and maintenance of NLRB standard hardware and software configuration. All changes to the NLRB standard configuration must be approved by the Chief, Information Infrastructure or his designated representative. The contractor will diagnose hardware and software problems, repair them, and report all problems to Chief, Information Infrastructure or his designated representative. The contractor shall perform network management duties according to guidelines and standards provided by Chief, Information Infrastructure or his designated representative. Duties include but are not limited to the following task:

Verifing/editing user accounts
NOS updates and patches
Driver updates
Add/delete print queues
Editing user accounts

1.4 Procedures for Contractor carrying out support requirements

Contractor will be assigned tasks by the Chief, Information Infrastructure or his designated representative with the specifics of the work to be done.

2. Mail System

2.1 Hardware configuration

The NLRB has a Cubix communication server and three 486 PCs in headquarters setup as mail gateways to exchange email with the regional offices. One of the 486 PCs is setup with a modem connection for access by CC:mobile users. There are several mail gateways running on the Cubix communication server. All of the mail gateway running on the Cubix server are running across the WAN. Each regional office has a Gateway 486 PC with an internal modem setup as the mailserver for backup purposes in case the WAN goes down. The Judges offices and Resident offices also have a Gateway 486 PC with an external modem setup as their mailserver for backup purposes. The Gateway 486s are 33mhz with 8 Meg of RAM and 170 or 210 Meg hard drive. The modems are either internal or external US Robotics 28.8 v.32.

2.2 Software configuration

Each fileserver at NLRB has Lotus CC:mail version 6 install on it. The desktop PCs are running the CC:mail version 6 clients. NLRB is running Version 6.10 of CC:mail router and version 8 of the CC:mail administrative utilities.

2.3 Location of each mail server

There is a mail server running in each field office locations and several mail server gateways running at headquarters.

2.4 Point of contact for maintaining each server

The point of contact for mail servers in most field offices is the office manager. In Regions 2, 8, 9, 20, 22, 29, 31 and 32 the computer specialist/assistant is the point of contact. The headquarters point of contact for email is the Mail Administrator.

2.5 Support Requirements

2.5.1 Carried out by FTE

Manage NLRB electronic mail.

2.5.2 Carried out by Contractor

2.6 Procedures for Contractor carrying out support requirements

2.7 Desktops and Laptops

2.8 Makes, Models and HW Configuration

Make	Model	Memory	Drive Size	NIC	Monitor	Mouse
Gateway	P5-66	16 mb	540 mb	3COM	17 “	PS2
Gateway	P5-90	16 mb	1.3 gig	3COM	17 “	PS2
Gateway	P5-120	16 mb	1.3 gig	3COM	17 “	PS2
Gateway	P5-166	32 mb	2.1 gig	3COM	17 “	PS2
Gateway	P5-200	32 mb	3.1 gig	3COM	17 “	PS2
Gateway	E3110-233	32 mb	4.3 gig	3COM	17 “	PS2
Dell	GX1-400	64 mb	6.4 gig	3COM	17 “	PS2

NOTE: The PCs running at 200 Mhz and above have sound cards, however only some of them have speakers.

2.9 Software configurations

2.9.1 COTS applications

NLRB approved COTS applications are as follows:

Pentiums Applications
Windows 95
Microsoft Office 95 or 97 Suite
Novell Client 32
Lotus cc:Mail 6.0 *
Shiva Communication Software
Close Up Communication Software
DataFlex
Instant Internet
Internet Explorer (Professionals only)*
Westlaw (Professionals only)*
Acroreader (Professionals only)*
Zyimage (Professionals only)*
Summation (Professionals only)*
Travel Manager (where applicable)
Reachout
Adobe Frame Maker
Omni Pro

2.9.2 Utilities

Norton Anti-virus Software
Microsoft Utilities (Scandisk, defrag, etc)

2.9.3 Developed AIS

CASE Tracking Programs Specific to that office
Citenet (Professionals only)
Time and Attendance (PC Tare)
Chips*
Lookup (where applicable) *
Chips report (where applicable)*
ROBS (OM PC)*
NFC Communication Software (One PC)*
CATS Icon (Where applicable)*

* = Only installed in Regional Offices

2.10 Locations each make and model is deployed
2.11 Quantities of each make and model deployed at each location
2.12 Support Requirements
2.12.1 Carried out by FTE
2.12.2 Carried out by Contractor
2.13 Procedures for Contractor carrying out support requirements

3. Communications

3.1 Type

The primary data communications within the NRLB are file and print services via local area networks. Electronic mail can be included in this description since ccMail is a shared file system. Data communications between agency locations takes place across either dial up or dedicated circuits. The bulk of the traffic between locations is electronic mail via dial up circuits. A wide area network linking all agency locations shall be installed by the beginning of FY2000. The WAN shall carry electronic mail, some Internet access and Intranet traffic to headquarters based servers.

The local area networks physical topology is a star wired to EIA/TIA 568B specifications. All of the field offices have an Ethernet hybrid LAN.

Communications within the agency between locations occurs primarily via dial up V.34 modems. Electronic mail is transferred through the WAN connection. Dial out capability is available at all regional offices and headquarters via a network modem pool. A four port Shiva LanRover is installed in all regional offices, 24 ports are available at headquarters. Internet access at all field offices is provided through a Bay Networks Instant Internet IPX to IP gateway via a dial up connection to an ISP. Headquarters is equipped with a 256K frame relay connection to the Internet through a Cisco PIX firewall, a Bay Networks Instant Internet IPX to IP Gateway is installed also. A PC running the ccMail SMTP product handles electronic mail via the Internet.

3.2 Support Requirements

3.2.1 Carried out by FTE

3.2.2 Carried out by Contractor

The contractor shall be responsible for remedial maintenance on all hardware components. The exception is the routers and csu/dsu equipment for the wide area network.

Key network hardware shall be identified and maintained in such fashion as to minimize interruption and down time in event of a failure.

3.3 Procedures for Contractor carrying out support requirements

4. Cabling/Topology

4.1 Type

The following is a brief description of the local area network cable plant at the NLRB, Washington D.C. headquarters location.

The Agency occupies floors 5 through 11 and the concourse of 1099 14th Street NW. The local area network (LAN) utilizes a collapsed backbone architecture. The cable plant can be divided into two components, the wiring and network electronics. The wiring is composed of the vertical backbone and the horizontal distribution cabling.

The vertical cabling is 6-strand 62.5/125 fiber; this is home run from the 7th floor computer room to the data-cabling closet on each floor. The horizontal wiring is category 5 unshielded twisted pair (UTP); this is terminated on cat 5 outlets in every office and workspace and cat 5 patch panels in the data cabling closet on each floor.

The network electronics component of the cable plant is comprised of Cabletron concentrators and a Xylan switch. A concentrator is located in each data-cabling closet. The horizontal UTP terminates at the concentrator with a 10baseT connection. The concentrator contains an internal bridge that connects to the Xylan switch via 10baseF. The NetWare file servers, communications servers and mail gateways connect to the Xylan switch via 10baseT.

4.2 Support Requirements

4.2.1 Carried out by FTE

4.2.2 Carried out by Contractor

The contractor shall be responsible for remedial maintenance on all network and cable plant hardware components.
Key network hardware shall be identified and maintained in such fashion as to minimize interruption and down time in event of a failure.

4.3 Procedures for Contractor carrying out support requirements

5. List all COTS software authorized for use and support

5.1 Software loaded on all systems

Pentiums Applications

Windows 95
Microsoft Office 97 Suite
Novell Client 32
Lotus cc:Mail 6.0 *
Shiva Communication Software
Close Up Communication Software
Instant Internet
Internet Explorer (Professionals only)*
Westlaw (Professionals only)*
Acroreader (Professionals only)*
Zyimage (Professionals only)*
Summation (Professionals only)*
Travel Manager (where applicable)
Reachout
Adobe Frame Maker
Omni Pro

5.2 Software loaded on specific locations or system types

CASE Tracking Programs Specific to that office
Citenet (Professionals only)
Time and Attendance (PC Tare)
DataFlex
Chips*
Lookup (where applicable) *
Chips report (where applicable)*
ROBS (OM PC)*
NFC Communication Software (One PC)*
CATS Icon (Where applicable)*

* = Only installed in Regional Offices

5.3 Miscellaneous software

Attachemate Communication Software (Personnel)
Paradox

6. List all Peripherals authorized for use and support

6.1 Printers

6.1.1 Make and models

Make	Model
Hewlett Packard	LaserJet II P
Hewlett Packard	LaserJet III P
Hewlett Packard	LaserJet III SI
Hewlett Packard	LaserJet 4L
Hewlett Packard	LaserJet 4M
Hewlett Packard	LaserJet 4 SI
Hewlett Packard	LaserJet 5L
Hewlett Packard	LaserJet 5 SI
Hewlett Packard	LaserJet 6 L
Hewlett Packard	1200 C
Hewlett Packard	Color Laser 5M
Xerox	4520

6.1.2 Quantities of each by location

6.2 Scanners

6.2.1 Make and models

Make	Model
Fujitsu	Image Scanner
Hewlett Packard	Scanjet ADF
Hewlett Packard	Scanjet 5
Hewlett Packard	9100 C

6.2.2 Quantities of each by location

6.3 Modems

6.3.1 Make and models

Make	Model	Speed	Type	Location	Number
Hayes	Acurra	14.4	External	Hqtrs	2
US Robitics	Courier	28.8	Internal	All Regional Ofcs	33

US Robitics	Courier	14.4	External	All Regional Ofcs	33
US Robitics	Courier	28.8	External	Hqtrs	10
US Robitics	Courier	28.8	External	All Resident & Judges Ofc	21

7. List any Miscellaneous Hardware

Merridan CD Towers
Trace Digital Powerwriter CD Duplicator
Copy Pro 2000 Disk Duplicator
Yamaha CDE 100 II CD Recorder
Spectralogic Spectra 9255/1 ST (Automatic Backup Unit)